

TEXTILE BULLETIN

Vol. 52

June 10, 1937

No. 15

The Complete Story of PROVIDENT PROTECTION *in Action*

INSTITUTE FOR
RESEARCH IN
SOCIAL SCIENCE



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Increase in Use of Spun Rayon*

By Dr. F. Bonnet, The Viscose Co.

ONE of the outstanding textile interests during the past year was centered around cut rayon staple, i. e., spun rayon. This was reflected by its increased consumption, which jumped to practically four times what it was in 1935, namely, from 6,661,000 pounds in 1935 to 25,400,000 pounds in 1936. Not that cut staple is in itself anything really new, for ever since there was a rayon industry its waste was garnetted, cut into suitable lengths of staple and spun into various types of yarn, but in this form it was a product limited in amount available and quite variable both in filament size and length of staple as might be expected of a waste product.

Now, however, that filament of uniform size are being spun and cut to specification and specifically for the purpose of producing cut staple it can no longer be considered as a waste product. In fact large mills have been and are being designed, built and equipped with special machinery solely for the purpose of producing such cut staple. It certainly can no longer be considered a waste product.

Development of War

The development which led to its manufacture on a large scale is rather interesting. Cut off by blockade from the raw material markets of the world, Germany toward the end of the World War turned to her rayon mills to supply cut staple as raw material for her idle cotton and wool machinery. The spinning of the fibres was done in the ordinary way and the resulting skeins were then cut to suitable fibre lengths in a rather crude way.

During the years following, this development was almost lost sight of while great improvements were being made in the quality and character of continuous filament rayon. Thus, 1927 saw the first commercial production of the semi-dull rayon "Dulesco" an oil delustered yarn and in 1929 the dull or so-called pigmented yarns began to make their appearance. Then came the general world

depression when several European countries found it difficult to finance foreign importations including textile raw materials and again turned to their rayon mills to supply them with staple suitable for spinning on their cotton, wool and worsted machinery.

Germany and Italy were the pioneers by necessity in this field and intensive subsidized research was carried on with the avowed purpose of making these countries more self-contained and less dependent upon foreign sources of raw textile materials. This development, starting out as a substitution, soon indicated that such cut rayon staple had some very interesting properties of its own which were not duplicated by the natural fibres. The fact alone that cut staple is more uniform both in filament size and staple length made it much easier to spin with less waste and at a lower cost. The resulting fabrics could be soft and pliable or coarse and harsh depending upon the filament size chosen so that a wide variety of design was

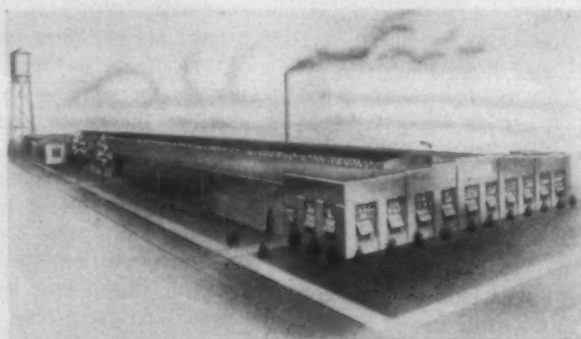
possible. Then, too, such staple could be mixed with the natural staple to give further variety in design.

It is easy to understand, therefore, why cut rayon staple has aroused such keen interest when it is remembered that all natural raw fibres vary both in filament size and staple length. In addition to this the cut rayon fibres may be bright, semi-dull or

dull; or again they may be made of viscose, copper-ammonia or acetate rayon each of which produce yarns and fabrics of distinctive characteristics. Cut rayon staple is thus offering to the cloth designer a wide variety of yarns for producing new and almost unlimited effects.

Came Later Here

This country with its wonderful supply of raw materials at first was not much interested in cut staple, considering it in the light possibly of a poor stepchild of the rayon industry. However, when some of our designers and cloth manufacturers visited Europe they became im-



*Paper presented at National Rayon Technical Conference in Washington, D. C., May 14th and 15th.

(Continued on Page 6)

Disturbing Factors Affecting The Textile Industry*

By S. M. Beattie, President C. M. A. of South Carolina

As a background for our study, it is necessary, first, to go into past history and note the trend of the textile industry. It started originally in Old England, where under the leadership of strong-hearted men like Arkwright and others it grew from the crude cottage-weaving system into a great power-driven, extensively-equipped industry.

The development of the industry in those early days, however, was accompanied by many misunderstandings as to the value and purpose of industry; and in time the element of adverse legislation, high taxation, and other retarding factors, made their appearance and encouraged capital and industry to seek other fields. The next field selected was New England, where, after a slow start and ultimately a full development, industry faced the same difficulties, and reacted in the same natural manner by moving to the South.

Industry has developed tremendously in the South, and has become a great asset, but there are certain indications on the horizon which are disquieting, to say the least, and unless we in the South are alert to our responsibilities and opportunities we may suffer the same fate as Old England and New England.

Let us look at this picture for a moment.

In the year 1840 there were 2,284,000 active spindles in the United States. At that time, only 180,000 of these spindles were in the cotton-growing States, and 1,597,000 in New England. In 1921 the total active spindles in the United States had increased to 36,047,000. The spindles in New England had increased to 18,387,000; in the cotton-growing States to 15,708,000. From then on the trend is in the other direction, for in 1936 the total active spindles in the United States had reduced to 24,664,000, and the active spindles in the New England States had dropped to 6,091,000; while the active spindles in the cotton-growing States had increased to 17,834,000.

The past ten years have shown a decided decrease in spindles in the New England States, while in the South the spindles have about held their own, with a slight decrease from the high point of 18,585,000 spindles in 1930.

It is well to note that while the total active spindles in the textile industry have been drastically dropping in New England during the past twenty years, and while there has been a tendency downward in the South during the past five years, industry has grown by leaps and bounds in South America and in the Orient. For instance, active spindles in Japan have increased from 1,274,000 in 1900 to 11,068,000 in 1936; in China from 550,000 in 1900 to 5,010,000 in 1936; in India from 4,945,000 in 1900 to 9,705,000 in 1936; in Brazil from 1,200,000 in 1913 to 2,712,000.

*Address before the Cotton Manufacturers' Association of South Carolina, June 4th.

Over two hundred years ago the textile workers in Old England competed severely for their jobs with the textile workers of New England and they lost. A century later, the textile workers of New England competed for their jobs with the textile workers in the South, and they lost. Has it developed that the textile workers in the Southern States are now competing for their jobs with the textile workers in other countries? I feel that unless we Southern people rally to their defense by perpetuating and safeguarding the industry for the South that our own workers are fighting a losing battle.

This is therefore a problem not merely for industry, but a problem specifically for its workers; and more than that, it is a serious problem for our farmers as well, for the American mills are the farmers' best customers. In fact, according to the report of the Federal Trade Commission, November 20, 1936, the farmers and the mill workers received more than two-thirds of the cotton mills' dollar—\$0.2557 going to labor and \$0.4251 going for raw materials.

Cotton mill payrolls in South Carolina furnish a livelihood directly or indirectly for from 300,000 to 500,000 people. Total employees of cotton mills in South Carolina, 1935—83,592. Estimated population of mill villages over 172,871.

South Carolina mills pay over 20 per cent of the taxes, buy a large percentage of the power generated in the State and are important customers of the railroads. The mill payrolls are the spark plugs of the trades and professions of the sections where the mills are located. The product of the South Carolina cotton mills was worth \$205,681,145 in 1935, which is \$154,178,148 more than the value of South Carolina's cotton crop (lint only) and more than the value of all agricultural products of the State combined.

In this connection, there is one phase of this picture that South Carolinians should very seriously consider. We should do everything possible to perpetuate our industry, not merely for the sake of industry itself, and the effect of its payrolls generally upon the State; not merely in defense of the textile workers, but also that our farmers may have adequate markets for their products—and no one will deny that the farmers need adequate markets and need assistance. The average income of each South Carolina mill worker was in 1934 over five times the income of each farmer.

These are facts which will cause all South Carolinians to pause and consider. All indications point toward a dangerous trend. Apparently we are in process of losing a great deal of ground that has been gained within the past half century in the South. After the Reconstruction days the building process was very slow. Between 1885 and 1925, progress was more rapid, and we have earned a

great industrial prosperity, which appears to be permanent. The disquieting trend, however, within the past years—the series of attacks upon industry; the disorganized state of agriculture in the South, will make any thinking man wonder just where we are headed for the future. Can we hold employment at its present point, or will it still further decrease, as it did in New England? Will our children and children's children go begging for jobs? I am sure we would all like to do something to check any trend which has such a potential danger.

There is probably no one answer to these questions, and I do not pose as an authority who can tell you all the answers. I can only point to a few of the disturbing factors and contributing causes. One of them is taxation.

In New England some years ago they had achieved a high point in taxation, and reached the peak. The cotton mills in that section paid the highest tax rate per spindle in the textile world. As a result of that factor, and other causes, the industry sought other territories. After years of litigation and misunderstanding, the tax authorities came to the conclusion that they were losing ground; and in a frantic effort to save their industry, they reduced the tax rates drastically. But the reductions, though great, came too late. The "colt had fled" before the gates were closed, and while in New England tax rate is today much lower than it is in the South—due partially to their reductions, and partially to our increases—New England has suffered a damaging loss in its industrial assets.

In the matter of property taxes, the tax rate paid per spindle in South Carolina today is one of the highest in America. The rate paid by South Carolina cotton mills is higher than that of any other Southern State.

It should be remembered that property taxes are only a small portion of the taxes paid by cotton mills. They have the corporation license fee, the capital stock tax, the Federal and State income taxes, with heavy burdens in high brackets; the tax on surplus; the windfall tax; taxes on various products purchased by the manufacturer; taxes incident to the Social Security program. In fact, in South Carolina there are over thirty-five different kinds of taxes paid by the cotton mills. It has now reached the point where the taxes paid usually exceed the net income of the mills.

Another important factor, and a contributing cause to our dilemma, is found in the fact that we have lost great markets and are having difficulty holding our own. Many of the Southern mills in years past exported the greater portion of their goods to Asia, Africa, South America and the islands. Today we export very little cotton goods. All of that business has been permanently lost, and there seems to be little hope of regaining it. On the other hand, and at the same time, our competitors throughout the world are not only taking our export market, but they are coming into our own country and seriously threatening our own American market.

This is a difficult problem to solve. The high American standards of living involve a high cost of production. This seems to be inevitable under the present system. At the same time, our foreign competitors, paying lower wages for longer hours, can undersell us in the world

market and in our own market; and in the light of our present nationalistic policy it seems very difficult to hold our own against such severe competition, and yet it must be done.

One can actually buy Japanese cloth in the United States made of American cotton, at prices varying from 25 to 50 per cent lower than corresponding American cloth.

Handkerchief manufacturers in our own back yards in the South—with plants built there purposely to use Southern goods—actually find it advantageous to buy goods from other countries. This problem of foreign competition has not yet been solved by any means. With our high standards of living and steadily increasing costs of production, we are faced with competition from the Orient, South America, and even Europe, and it looks like more than improved methods and modern machinery will be needed to hold the American market for American mills. Something must be done to stem this tide, or else our national policies with respect to industry will force us out of the industrial field, and hand our industrial business on silver waiters to our foreign competitors.

I hope I am not painting too gloomy a picture when I advise that there are very few favorable factors on the horizon today for industry. There must be a public change at heart, and an understanding of our fundamental problems, before we can be optimistic. I believe, however, that one of the greatest assets of the textile industry and one of the most favorable factors today lies in the fact that at least in the South there is—ard for generations has been—a close, friendly relationship between the textile workers, the textile executives and the stockholders. They came from the same Anglo-Saxon stock. They have lived in the same environment; followed the same traditions; spoken the same language, and worshipped the same God. They have been closer together than is true of the executives, workers and stockholders in other sections. This is a vitally important factor, because it means a mutual understanding, a closer blending, and a gathering together in common defense in periods of stress. The vast majority of the workers in the South have an abundance of common sense and vision. They realize that this is a long-time fight against the competition of the world; and I am very hopeful that over a period of years this close relationship and mutual understanding will produce the solution of our industrial problems.

Another asset and encouraging factor is found in the growing understanding of the public of the problems of industry. This Association has persistently tried during the last several years to tell the truth about the cotton mills to the people. It is most encouraging to note the friendly reaction throughout the State and the Nation at large. The great majority of the people recognize our problem, and sympathize with us in our difficulties, and have a co-operative attitude.

Another asset is found in the old Southern tradition which encouraged this territory to stand together against all odds a generation ago. We have a way of seeing things alike, and doing things together—working in the common good for the sake of the South, its people and its assets.

Increase in Use of Spun Rayon

(Continued from Page 3)

pressed with the possibilities of cut rayon staple and the general trend set in for its utilization here. With their interest aroused the development in this country has been rapid although it is still only in the initial stages.

So we again have the phenomenon of the development of what once was a waste product into one of basic importance. While cut staple was being made from actual waste dependent upon the limited amount produced and variable in character it never really was satisfactory nor could it prove its full worth, but with the fiber being spun and cut to specification it is stepping out as a full-fledged member of the textile and specifically the rayon industry.

To possibly clarify the status of cut staple it may be interesting to give some figures on the world production of textile fibers as given in Samuel Courtauld's recent report. Based on a total estimated weight of 26,000,000,000 pounds the various textile raw materials were proportioned as follows:

	Pct.	Pounds
Cotton	53.7	13,962,000,000
Wool	14.5	3,770,000,000
Jute	13.3	3,458,000,000
Hemp	6.9	1,794,000,000
Flax	6.3	1,638,000,000
Rayon	3.9	1,014,000,000
Cut staple	1.1	286,000,000
Silk*	0.3	78,000,000
Total	100.0	26,000,000,000

The world production of rayon increased 9 per cent in 1936, while cut staple in the same year increased 101 per cent to 286,000,000 pounds, and in this country the consumption of cut staple in 1936 was four times that of 1935, as stated above.

Production Staple

In the production of cut staple no matter which rayon process is used the preparation of the spinning solution is essentially the same as for continuous filament yarn. The actual "spinning" or drawing the fibers away from the face of the jets is also the same, but from this point on the handling of the spun material is different. In the case of continuous filament yarn the fibers from each jet making up the multifilament yarn are collected in a spinning cylinder or box or on to a reel or bobbin and after running for a definite scheduled time the boxes or bobbins are doffed and the yarn handled in cake or skein form and redrawn to cones, spools, tubes, etc., but in the case of cut staple, the yarn from a number of jets is collected in the form of a tow or rope which runs directly to the cutting machine which accurately cuts the tow into any desired uniform length of fibers. For ordinary cotton machinery the lengths are 1 7-16 inches, while for wool machinery they may be 3, 5, 7 inches or more in length.

Since the fibers from a number of jets are collected it is possible to use much larger individual jets. For ordinary continuous yarn spinning a jet having, say, from 20 to 100 holes is used, whereas for cut staple a jet will have 1,000 or more holes. The rate at which the solution is

pumped through the jets or the number of holes in the jet for the same pump delivery determines the filament size of the fibers. For a 1.5 denier filament a jet with 1,000 holes will be spinning 1,500 denier yarn, whereas a jet with only 100 holes also spinning 1.5 denier filament will be producing only 150 denier. In other words, the spinning for cut staple is on a much greater scale and a cut staple machine with the same number of ends will require, say, ten times as much solution as a continuous filament machine. This means making up spinning solutions on a much larger scale which in turn is leading to some interesting developments in the mechanics of handling the pulp through its various stages into spinning solution.

In making up the ordinary viscose spinning solution a high alpha cellulose pulp is used in the form of square sheets like blotting paper. These are steeped in caustic soda by placing them on edge together with sheet iron spacers into a heavily constructed iron steeping press. After steeping a definite time the caustic solution is drained off and a plunger presses the excess caustic from the pulp leaving the damp sheets ready to be shredded into crumbs. After ageing and treating with carbon disulphide they are ready to be dissolved and made up into the spinning solution. It will readily be seen that solutions are made on the batch system.

Consider New Method

Owing to the much larger amounts of solution necessary in spinning staple the idea of making spinning solutions on a more or less continuous system is being considered. What directions may be illustrated by a recent article by H. Jentgen "Kunstseide & Zellwolle" November, 1936.

Instead of using the pulp in the form of small square sheets a large continuous sheet from a large roll is used. Several of such rolls are set one above the other at the end of a long rather shallow iron tank through which the caustic solution circulates. The sheets of pulp are slowly run through this on a wire conveyor at a speed to allow full steeping of the pulp. At the exit end of the tank are sets of squeeze rollers which press the sheet to the proper degree of dampness which then passes slowly through the ager, still carried on the wire conveyor. At the exit of the ager are the crumbling machines, sometimes one, sometimes two. After crumbling the process proceeds again on the batch system, i. e., xanthing and dissolving.

At first sight such a continuous operation would seem quite simple and it probably would be but for the fact that as the sheet of pulp enters the caustic solution progressive shrinkage takes place and in order not to tear the sheet the conveyor must have a higher speed where the sheet enters, a slower speed where it leaves the caustic tank. One way of handling this condition was the suggestion to build the wire conveyor in sections and to progressively reduce the rate of travel of the sections. Three sets of squeeze rolls at the end of the tank would also be necessary to prevent the possibility of rupturing the sheet, the first set acting largely as a carrier and drive, the second set giving a moderate squeeze while the third reduces the pulp to the final required condition of dampness. In passing through the ager a further shrink-

(Continued on Page 30)

the lady in white... in Ribelon

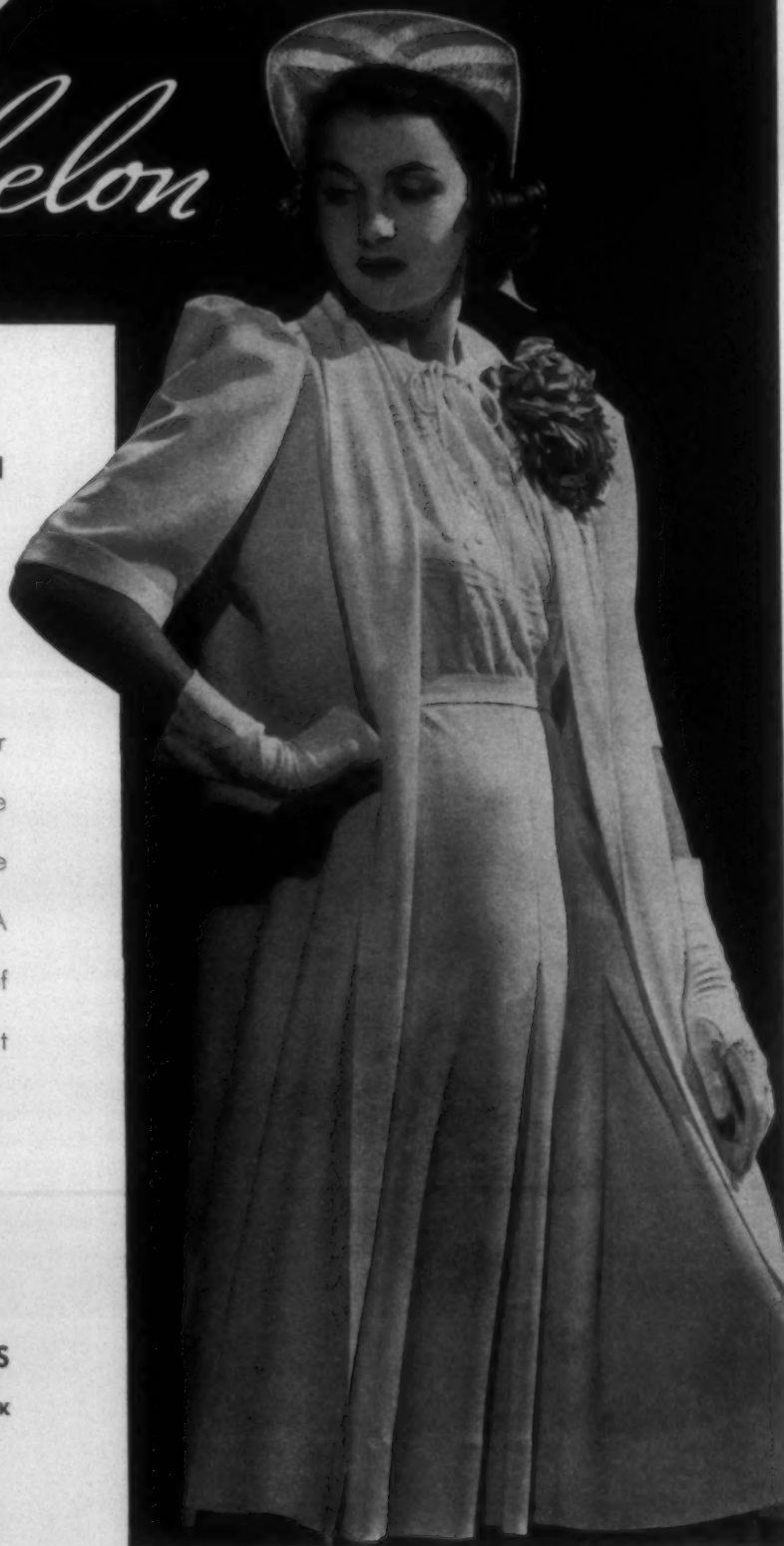
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Eight New Uses for Cotton

Washington, D. C.—Eight new uses of cotton will be encouraged under a program which seeks to divert surplus cotton from normal channels of trade to uses which will increase consumption, the Agricultural Adjustment Administration has announced.

A program to encourage the use of cotton in highway construction throughout the country has been in operation during the past year.

The eight new uses include utilization of cotton fabric as: (1) A covering or membrane, either by itself or as a reinforcing material, for sides of irrigation, drainage, run-off, or other types of ditches; (2) a covering or membrane to reinforce fills or cuts for roads, highways, or other purposes; a protective covering for fruits or (3) a protection for hives of bees; (4) a protective covering for fruits or vegetables during growing, ripening, or curing processes; (5) a covering for shading or protecting tree seedlings or shrubs during critical periods of growth; (6) a portable covering, hood, or tent in connection with fumigating, spraying, or dusting fruits, vegetables, vines, trees, or plants; (7) a roof, outside covering material, or insulation in the construction of permanent or semi-permanent structures; and (8) a membrane or reinforcing material in connection with the surfacing of airport runways, roads, bridges, paths, or walks.

The cotton or cotton fabrics for the eight uses will be donated by the Agricultural Adjustment Administration on the basis of applications made by Federal, State, or other Governmental agencies and to colleges, universities, and other non-profit organizations.

The cotton diversion program is being conducted under the provisions of Section 32 of the amendments to the Agricultural Adjustment Act, approved in August, 1935, which makes available 30 per cent of annual customs receipts for certain purposes, which include encouraging consumption of agricultural commodities by diverting them from normal channels of trade to new uses. The cotton diversion program is being supervised by the marketing section of the Division of Marketing and Marketing Agreements.

Under the program, 1,000 yards of untreated cotton fabric have already been furnished to the Bureau of Plant Industry to be used in fumigating young tobacco plants to lessen or prevent damage from blue mold and possibly other tobacco diseases. The fabric will be used as a chamber or covering to retain gaseous poisons applied at night. Also, 1,000 yards of treated cotton fabric have been supplied for similar use. Tests to determine the efficiency and economy of each type of fabric used will be conducted at Federal or State experimental stations in North Carolina, Virginia, Maryland, and perhaps in other places.

In addition, 10,000 yards of an open mesh fabric are expected to be supplied within the next few days to the Forest Service for use as a membrane in the temporary fixation of soil on sides of cuts and fills of roads and highways. The cotton fabric will be used to hold soil on the side slopes of roads between the time grains or grasses are sown and the time these grains or grasses take sufficient root to hold the soil in place.

Through the co-operation of the Forest Service with the marketing section and in accordance with designs and

specifications made by the former agency, it is planned to utilize cotton fabrics as a roofing material for the entire structures and as a side wall and ceiling material for the porches on two buildings to be constructed in Missouri and two other buildings to be constructed in Iowa for the soil conservation service.

As far as is known, cotton fabric has never been used as a reinforcing material or membrane in surfacing airport runways. The use of cotton fabric for somewhat similar purposes is still novel and not customary in commercial practice. It is expected that about 45,000 square yards of cotton fabric will be used at Fort McClellan, Alabama, in connection with the surfacing of an airport runway.

Approximately 8,500 bales of cotton were used in experimental highway construction during the summer of 1936. This was evenly divided between two projects—fabric binders for bituminous-surfaced roads and mats for curing concrete—both developed as new uses for cotton. This program is being conducted by the Agricultural Adjustment Administration in co-operation with the Bureau of Public Roads and State Highway Departments.

More than 6,166,500 square yards of cotton, equivalent to about 4,000 bales, were used by States in the fabric reinforcement program, enough for building 578 miles of new road. Between 4,000 and 4,500 bales of cotton were used in the construction of 89,500 mats for the concrete-curing project in 2 States. Both materials were made available to State highway departments by the Agricultural Adjustment Administration, subject to performance reports.

Sanforized Yardage Gains 92.5% During Quarter

A 92.5 per cent increase in fabric yardage Sanforized-shrunk during the first quarter of 1937, compared with the same period in 1936, is made known by John C. Turrell, director of the Sanforizing division, Cluett, Peabody & Co. The gain, said to total several millions of yards, includes both cotton and linen fabrics.

This large percentage of increase follows a 46 per cent gain for the whole of 1936. Fabrics for utility clothing, men's sports slacks, piece goods, and women's and children's ready-to-wear all showed percentage increases approximately equal, Mr. Turrell states.

The major contributing factor in this increase, Mr. Turrell stated, was the policy sponsoring widespread label identification of merchandise which was put into action last July and is being constantly extended. This consisted of a far-reaching trade development program and a consistent advertising schedule in both trade and consumer publications. This program is being continued for the second six months of the year.

Receives Patent

Charlotte, N. C.—John F. Lewis and Charles W. Moseley have been granted a patent on a stop motion for spinning frames in which the machine is stopped prior to doffing, while the ring rail is on its downpath. Messrs. Lewis and Moseley are both of Charlotte and the patent has been assigned to the R. H. Bouligny Company.



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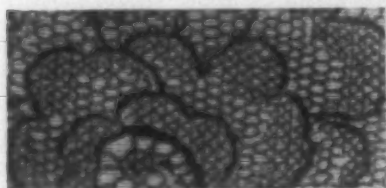


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Dainty Colors and Pretty Patterns Will Feature Fashions

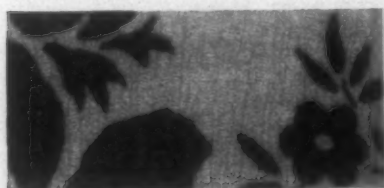
Continuing our observations of current successes with the idea of future style guidance, we must bear in mind that it is the new things which are selling well today which are most certainly booked for volume business next season. Every fashion tendency, no matter what kind of merchandise it involves, rises to a peak of popularity and then descends into oblivion. From



Swatch 1

the moment it has risen to a certain height of acceptance until it has slid below approximately the same place in public esteem it is a money-maker. The rapidity of this descent depends largely upon the skill with which it is merchandised. Therefore, a fashion which has had prominence over too long a period, or one which has been not wisely but too well promoted, is dangerous. All these things must be borne in mind when planning for the future.

General style tendencies are one of the safest grounds upon which to base calculations. For example, sheer materials of all kinds are now being fea-



Swatch 2

tured for wear at any hour of the day. Fashion is giving more importance to feminine clothes. "Dainty" colors and "pretty" patterns which were utterly lacking in style appeal a season or so ago are now the darlings of the mode.

Old-Time Favorites

Many manufacturers have stored away in the archives of their business scrapbooks of old fabrics. Get them out! You will find them a treasure

house of rich suggestion as to what to make in this year of grace.

The feeling expressed in many of these old fabrics is exactly right for the new styles. Widely-spaced bouquets are, for example, one of the best-liked patterns of the present day. Exquisite ones are on record in files of old materials. Libraries and museums will serve as a rich source of inspiration for stylists and manufacturers who are not so fortunate as to possess private resources of this kind. Look carefully to the records of the period immediately following the Civil War. We have not yet nearly exhausted the inspiration of the epoch of "Gone With the Wind."

Crisp Sheers Are Newest

The tendency toward romantic clothes has caused a renewed interest in crisp fabrics which can be counted on to carry over well into next season. Marquisette and mousseline weaves



Swatch 3

rank high. In this connection the alert manufacturer will keep well in mind the possibilities of the new permanent crisp finish which withstands tubbing.

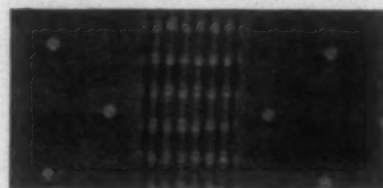
Woven multi-colored stripes, shadow effects, crossbars and stripes formed from groups of narrow cords, all are good in conjunction with sheer grounds. The sensational success of the full-skirted gypsy dresses in the latest French collections has given fresh impetus to the popular interest in vivid—one might say violet—stripes. This spectacular fashion is not confined to evening clothes. One finds it expressed in afternoon frocks where it is often discreetly modified by a combination with plain material.

The fashion for sheers is not by any means confined to crisp fabrics. With chiffons rated so high, voiles are definitely slated for big sales. The manufacturer who is out for the lion's share of success in this field will watch closely the successes in silk chiffons

and approximate them in next season's line. And don't overlook the promotional value of anti-crush process!

Tweed Weaves

At the opposite extreme of fashion, but also booked for good business are cotton tweeds. The newest tendency is to make them flatter, giving less



Swatch 4

prominence to slub yarns. This produces greater elegance of appearance which appeals because it is new.

Stripes, so important in other types of materials, are also very good in tweeds. Wide block stripes in such combinations as brown, gray and mustard are outstanding. Chevrons can be counted upon to again appeal to many buyers, as can also diagonals and herringbones. Checks, on the other hand, are a type of design which the manufacturer will find it wisest to approach warily. There is a diversity of opinion as to whether or not they will prove a big selling item during the approaching season.



Swatch 5

The fabrics illustrated on this page are: No. 1, fine English voile, white with a lace design printed in red. No. 2, cotton georgette from Liberty, London, warm ivory ground printed in brown. No. 3, crinkled white organdie printed with outline cloud design in red. No. 4, crisp sheer with open stripe very dark red with tiny white dots, suitable for town wear. No. 5, corduroy, which will keep right on being smart.

**BUILT LIKE
A MODERN
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AMCO No. 4 SELF-CLEANING ATOMIZER

Like to-day's efficient aircraft engine, the Amco No. 4 Atomizer asks for no pampering! Accurate metal-to-metal joints fit like exhaust valves in their seats. Mixture of air and water is as precise as carburetor action. Metals used, like those in the engine, have proved their resistance to erosion, mechanical wear and corrosion. All working parts — permanently adjusted for efficiency — are enclosed in a rugged bronze body.

Amco No. 4 eliminates manual cleaning labor! Every time it shuts off, both air and water nozzles are automatically cleaned. Rapid streamlined currents of induced air keep the nozzles free of lint and fly. Positive action prevents drip — feathering down. Its operation efficient and trouble-free through years of service, No. 4 is typical of the benefits enjoyed by owners of Amco Humidification systems. Write to-day — a specialist will visit your mill, without obligation. American Moistening Company, Providence, R. I. . . . Boston . . . Atlanta . . . Charlotte.

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- Automatically Self-Cleaning
(Both air and water nozzles)
- No Drip — No Feathering Down
- Improved Construction
- Maintains Full Capacity Delivery
- Eliminates Manual Cleaning Labor
- No Waste of Power

AMCO

HUMIDIFICATION

TAKE YOUR HUMIDIFICATION JOB TO A HUMIDIFICATION SPECIALIST



Problem PAGE

Devoted to Practical Questions and Answers Submitted by Our Readers

Reply To "Thin Place"

(Wants Advice on Thin Places)

Editor:

You can stop all thin places in your 28 pick cloth, in so far as the loom itself and you are concerned, but you cannot stop the thin places caused by bad filling and bad piecing up in the spinning room.

See to it that all crank arms are tight to both the crank shaft and to the sword.

Tighten all bolts that hold the swords to the lay.

Tighten box backs to the sword and the other end to the lay. Be sure that the screws in the race plate holds it tight to the lay.

Tighten all bolts in crank shaft boxes. Look to the rocker shaft and boxes—if worn, put in new boxes and turn the shaft part way round and push it to one side about one-half inch.

Spread the bottom ends of swords as much as you can and tighten them well to the rocker shaft.

Make certain that the cloth roll stands are tight to both the breast beam and the bottom girt.

Go over the whole take-up; see that every gear is cleaned out and well oiled so that they will work quick and easy on their studs.

Set the let-back pawl to turn back three teeth every time the filling fork operates.

See that the filling fork rack is straight and is tight to the mouthpiece. Set the fork prongs so that the tines will enter the rack without touching anywhere.

Turn loom to front center and have the fork prongs to go through the rack just far enough to raise the fork loop $\frac{1}{4}$ " $\frac{3}{8}$ " above snake head.

Throw the shuttle to the battery end and turn the loom so that the filling cam will be at its highest point, then set the goose neck so that it is in close proximity but not quite touching the lizard.

Now throw the shuttle to the left hand box and turn loom to front center and set the filling cam so that the snake head will go under the fork loop with the slightest turn of the crank shaft upward.

See that the starting rod finger and the let back connections are in correct position and tight.

Now engage the fork loop with the snake head and throw the shuttle to the battery end. See to it that the bunter on the lay is not worn round and that it is tight to the lay.

Set the battery latch so that the bunter will hit it plumb.

Set transferer so that you can just barely move the shuttle up and down the least bit when the crank shaft is on extreme front center.

See that the bobbin support is in the correct position to hold the bobbin but not so high as to interfere with the turning of the battery.

Be sure that the battery does not bind anywhere but turns freely all the way round.

Set the shuttle feeler so that it will protect safely but no more.

Be sure that the shuttle goes home in each box and that it does not rebound.

Be certain that the shuttle eye will thread easily but will not come out.

There are a few other things that I could mention, but they are not of as great importance as the above.

If you will set all of your looms that is on this 28 pick cloth as above directed and keep them in that condition you will have no more thin places, except as above mentioned.

GEO. W. C. CHAPMAN.

What Is Standard Twist?

Editor:

Will some reader give a rule to find the standard twist in yarn?

We are making some 36s filling and the weaver says that the twist should be $18\frac{1}{2}$ turns per inch.

"HUSTLING."

Reply To "New Dobby"

(Wants Reed for Dobby Weave)

Editor:

"New Dobby" asks for a reed to weave a certain pattern of cloth and gives measurements with the number of ends in each space.

In taking those measurements, you must have used an ordinary carpenter's rule, for the ends do not tally exactly, but is near enough to determine what dent reed is needed, and the way I figure it, a 37.5 dent reed is the one to use.

* Taking the $\frac{1}{8}$ " twill containing 15 ends means that there is $8 \times 15 = 120$ ends in one inch of this weave.

To find the dents per inch in the reed for this proceed thus: $119 \div 3 = 39.66$, then $39.66 \times .95 = 37.67$ or 37.5. Then the $\frac{1}{8}$ " space plain weave with 10 ends show that there are 80 ends to the inch in this for $8 \times 10 = 80$. Now use the same rule as above except that we divide by 2 instead of 3. $79 \div 2 = 39.33$, then $39.33 \times .95 = 37.36$ or practically 37.5.

Now, in figuring the $\frac{3}{16}$ " space plain weave contain-

(Continued on Page 16)



GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

TRENDS — As indicated by recent orders for Universal Winding equipment, the following trends are becoming increasingly significant.

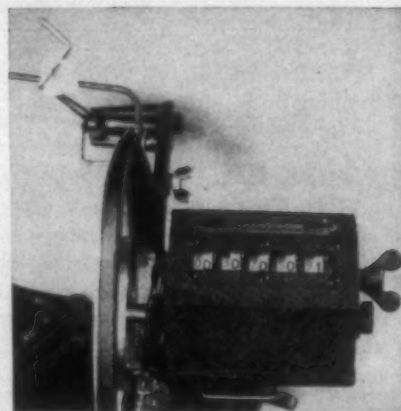
TOWARD LARGER FILLING BOBBINS

When changing from one type of shuttle to another (possibly to accommodate flat bobbins), many mills are replacing the 8" bobbin attachment on the No. 90 Winder with the 9 1/2" attachment for silk and rayon. The longer bobbin, holding more yarn, reduces the number of bobbins, saves handling cost at the winder, and increases running time in the loom. Where bobbins are wound for automatic looms, the Bunch Builder is used on the winder to reduce waste at the loom.



TOWARD 3°30' TAPER FOR SILK CONES

Particularly for hard-twist yarns, there has been a change from 5°57' taper to 3°30' in order to prevent the yarn from drawing in or rolling on the bare package at the start of the winding. Lately mills have become interested in the 3°30' taper for all winding, since there is an increase in production due to the larger average diameter of the package. And because there is less variation in the taper, the yarn speed is more uniform from tip to base of cone.



AUTOMATIC VISIBLE COUNTER

This counter, developed for winding thread, has two sets of dials. One shows at all times the exact yardage on the package. A partly filled package without knots may be removed when an end breaks and marked with the exact yardage it contains. The other set of dials indicate at the start the required yardage and turn backward toward "00000", at which point the spindle is stopped automatically.

SENSITIVE SIZING MECHANISM — Designed for winding silk or rayon on the No. 50 machine, this new development stops the spindle at a predetermined diameter of the package, without any pressure being exerted by a thread guide against the outer layers of yarn. The traverse frame back lifts one end of the stopping lever with almost a feather touch, bringing the other end into contact with the stopping wheel. This wheel raises the traverse frame dog segment, disconnecting the driving pulleys; at the same time, the brake is applied. There is a quick adjustment on the sizing mechanism for approximate size of the package, and a quick-setting vernier adjustment for the exact size.

Write nearest office for new bulletins on No. 50 Winder, No. 90 Winder, and Roto-Coner

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WINDING COMPANY

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Personal News

J. C. Farmer has accepted a position as general superintendent of Rockfish Mills, Hope Mills, N. C. He was formerly with Carolina Cotton and Woolen Mills, Fiel-dale, Va.

W. L. Whisnant, popular representative of Stodghill & Co., sizing compounds, has moved from Gaffney, S. C., to Concord, N. C. He will continue to call on the mills of the South as usual.

Allen J. Mercher, of the Pepperell Manufacturing Company, sails soon for an extended European trip on the Queen Mary.

Mr. Mercher will visit England and the Continent, combining both business and pleasure, and expects to be gone for about two months.

Walter S. Montgomery, president of Spartan and Startex Mills, Tucapau, S. C., and treasurer of the Gaffney Manufacturing Company, has been elected to the board of Converse College, woman's college here. J. Choice Evins, of the Clifton Manufacturing Company, is chairman of the board. The school was founded and named for Dexter E. Converse, Southern pioneer textile executive.

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Clinton Company

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Slo-Flo Textile Lubricants

Reduces lubrication cost and insures longer life of machinery. Will not corrode bearings.

Won't spatter or "throw off" and stain goods. Easily spotted out.

Withstands heat and will not thin out. Easy to apply.

Write for catalog.

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J. C. Stroud, formerly with the Edna Mills, Reidsville, N. C., is now superintendent of Marlboro Mill No. 5 at Bennettsville, S. C.

John A. Boland Wins Textile Award At N. C. State College

John A. Boland, of Burlington, who has been awarded the medal presented annually by the National Association of Cotton Manufacturers, to the North Carolina State College senior who attains the highest proficiency in the Textile School.

This medal is awarded only to Textile schools of recognized standing which meet rigid requirements specified by the National Association.



John S. Boland

During his four years as a Textile student at North Carolina State College, Mr. Boland has won many scholastic honors, having been elected to membership in Phi Kappa Phi, national honor society, and Sigma Tau Sigma, Textile honor society.

Mr. Boland has accepted a position with the Burlington Mills at Burlington.

This medal will be presented to Mr. Boland during the commencement exercises at North Carolina State College by George T. Bostic, assistant superintendent of P. H. Hanes Knitting Company, at Hanes. Mr. Bostic received the same honor when he graduated from the State College Textile School in 1923.

Howard E. Coffin Marries

Howard E. Coffin, chairman of the board of Southeastern Cottons, Inc., has married Miss Gladys Baker, of New York. The bride, as a writer, has been a special correspondent for the North American Newspaper Alliance and had interviewed many of the leading figures of Europe, including Mussolini, Kemal Ataturk, and others.

B. H. Camp of Clemson Wins Colorist Award

Clemson, S. C.—B. H. Camp, of Chesnee, S. C., has been given the Textile Colorist 1937 award for outstanding work in textile chemistry and dyeing at Clemson Textile School. This award is given each year and is based on scholastic record.

Record Cotton Crop for British Empire

Manchester, Eng.—British Empire cotton production, excepting India, exceeded all previous records during 1936, says the annual report of the British Cotton Growing Association.

Production amounted to 752,800 bales, of which the Uganda protectorate was responsible for the biggest share the Soudan being a good second. In most other territories, the report says, climatic conditions were far from good and poor crops were harvested.

New Flamenol Cable Introduced By General Electric

A new synthetic insulating compound has been recently introduced commercially by the General Electric Company under the trade name Flamenol. While similar to rubber in its characteristics, it contains no rubber and will not support combustion.

Termed the most radical cable development in the last 25 years, Flamenol is said to be entirely different from any insulation previously available. In addition to being non-combustible it is highly resistant to moisture, acids, alkalies and oils, and has excellent ageing characteristics and is strong mechanically, according to the makers.

The properties of Flamenol are such that it can be made a very soft and flexible compound, or made to be one with celluloid-like rigidity. It can be put into solution for coating or impregnating, and can be compounded, filled, calendered, and extruded in much the same fashion as rubber.

Flamenol-insulated cable is recommended by the manufacturer for power and control circuits at 600 volts and less, and for operation at a maximum copper temperature of 60 C. It is well adapted to machine-tool wiring, switchboard wiring, and battery and coil leads. Flamenol has a permanently smooth finish and foreign materials do not readily adhere to its surface. It is available in a variety of colors for circuit tracing. For most applications Flamenol is used without any protective finish, such as braid, lead or armor. It is said that only where the cable will be subjected to extreme mechanical abuses such a finish is necessary.

Superintendent Robert F. Gardner and Wife Killed By Hit-Run Driver

Robert F. Gardner, 63, superintendent of the Klumac Mills in Salisbury, N. C., and his wife were struck and killed by a speeding automobile as they stepped from their car in Gastonia, N. C.

The accident occurred about 9:30 on the night of June 6th. Mr. Gardner died in a Gastonia hospital about 11 o'clock and Mrs. Gardner an hour later.

Mr. Gardner's death was attributed to a fractured skull and Mrs. Gardner's to internal injuries. Both Mr. Gardner, who formerly served as superintendent of the American Mills in Bessemer City, and Mrs. Gardner were born in Cleveland County, N. C.

The driver of the car has not yet been found.

Coming Textile Events

JUNE 10

Southern Textile Association Associate Members Banquet at Ocean Forest Hotel, Myrtle Beach, S. C., at 8:00 P. M.

June 11-12

Southern Textile Association annual meeting, at Ocean Forest Hotel, Myrtle Beach, S. C.

JUNE 25-26

Piedmont Section, American Association of Textile Chemists and Colorists, summer outing at Ocean Forest Hotel, Myrtle Beach, S. C.

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TEXTILE LEATHERS
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HARNESS STRAPS
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2 to 5 times Longer Wear.

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Greater NET PROFITS!



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CHARLES **Bond** COMPANY
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Leather Curriers, Importers and Manufacturers
of Belting and Textile Leathers

Problem

(Continued from Page 12)

ing 8 ends it does not come out so well, which is the reason I think you used a very crude rule to take your measurements with. With 8 ends in a $3/16''$ space there would be approximately $42\frac{1}{2}$ ends per inch, which is out of proportion to the others. If there was $42\frac{1}{2}$ ends to the inch there, it would take a 39.42 dent reed. Now, if there were only 40 ends to the inch in that space (and I think that is the number) we could make it harmonize somewhat better with the others, considering the ends as 40 we will find the reed thus: $39 \div 1 = 39$, then $39 \times .95 = 37.05$.

If I was called on to produce such a cloth, I would use a 37.5 dent reed and draw in the ends as follows: For the $3/16''$ plain weave with 8 ends, I would place them 1 end in a dent, the $1/8''$ plain weave, 2 ends per dent, the $1/8''$ twill weave, 3 ends per dent, the next $1/8''$ plain weave, 2 ends per dent, then the $3/16''$ plain weave, 1 end per dent. The two ends that you say are very close together, I would draw in one dent, which completes the pattern.

"GREEN VILLE."

Reply to "Elbow Drive"

(What Solution To Right Angle Drive?)

Editor:

In my opinion a belt drive would be the best way to connect the non-parallel shafts in the question asked by "Elbow Drive."

In order to find the exact spot to place the guide pulleys, you must first determine where you will place the driving and driven pulleys on the two shafts.

The guide pulleys must be placed so that the active part of their surfaces will be tangent to planes passing through the centers of the faces of the driving and driven pulleys at the intersection of these planes.

You mentioned that the driven shaft must pull $4\frac{1}{2}$

H. P. but did not give R. P. M. of the driving shaft, nor the diameter of the pulleys you expect to use; for that reason I cannot give you any figures as to the size of the belt necessary.

Change of Trumpets?

Editor:

We will soon be going on finer counts of yarn, and it will be necessary to change the weight of the card sliver from 64 grains to 40 grains per yard.

We now have on our drawing a draft of about 6 with six doublings at the back.

We will continue on with this same draft in the drawing, and I would like to know if it will be necessary to change our trumpets?

"TRUMPET."

Hilton Awarded Medal At Clemson College By N. A. C. M.

Robert E. Hilton, of New Brookland, S. C., has been awarded the 1937 medal given by the National Association of Cotton Manufacturers. This medal is given each year to the senior who has attained the highest scholastic record in textile engineering. In recommending a student for this award the faculty of Clemson Textile School takes into consideration not only the record made in textile subjects but in all related subjects which the student has taken during the four years at Clemson.

Camp Receives Textile Colorist Award

B. H. Camp, of Chesnee, S. C., has been given the Textile Colorist 1937 award for outstanding work in textile chemistry and dyeing at Clemson Textile School. This award is given each year and is based on scholastic record. Mr. Camp was an honor student in high school, an honor student in junior college, and attained the highest scholastic record in textile chemistry and dyeing at Clemson.

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BOILS THIN • HAS MORE PENETRATION • CARRIES WEIGHT INTO THE FABRIC

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Member of

Audit Bureau of Circulations and Associated Business Papers, Inc.

Published Every Thursday By

CLARK PUBLISHING COMPANY

Offices: 118 West Fourth Street, Charlotte, N. C.

Eastern Office: 434 New Industrial Trust Bldg., Providence, R. I.

David Clark - - - President and Managing Editor

Junius M. Smith - Vice-President and Business Manager

B. Ellis Royal - - - Associate Editor

SUBSCRIPTION

One year payable in advance	\$2.00
Other Countries in Postal Union	4.00
Single Copies	.10

Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

No Signed Agreement Required

THE Supreme Court said, in its decision upholding the constitutionality of the law:

The act does not compel agreements between employers and employees. It does not compel any agreement whatever.

The *New York Times* calls attention to the fact that the National Labor Relations Board, which administers the Wagner Act, has previously expressed the same opinion. While the board has held that true collective bargaining requires "a serious intent to adjust differences and to reach an acceptable common ground," it has also ruled:

It is not requisite to collective bargaining that an agreement should actually be achieved.

The case in which the National Labor Board announced the above ruling is particularly interesting at this time. Jeffery-De Witt Insulator Company had been actively engaged in collective bargaining with Local No. 455 of the United Brick and Clay Workers. The union presented three demands involving seniority, the closed shop and the check-off system. It was unyielding in its insistence that these demands be granted. The company was equally firm in its refusal to meet the union's terms. In these circumstances the Labor Board held that "as long as this impasse continued, the respondent (that is, the company) might have been justified in re-

fusing to meet with the committee (of the union), on the basis that no agreement was possible." (See 1 N. L. R. B. 618.)

In view of the position taken by the Labor Board itself, as well as the Supreme Court's interpretation of the Wagner law, it is evident that **the conclusion of a signed agreement between employer and employee is not an essential condition of collective bargaining.** When a strike is called in an attempt to force the signing of an agreement, it is called for a purpose above and beyond what is required by the Wagner Act.

We have yet to find any statement upon the part of the United States Supreme Court or any labor board which even suggests that any signed agreement is required.

The officials of a mill must meet with their employees or their representatives and consider any demands or requests, but even though they are granted, there is no reason whatever to sign any agreement or put anything in writing.

Influx of Garment Plants

THE South desires and will welcome legitimate industries, but we are somewhat dubious about the recent influx of garment manufacturing plants into this section.

The Governor of New Jersey has been referred to as standing guard over New Jersey's reputation as a haven for "runaway sweatshops from New York," and as practically all of the many garment manufacturing plants now being established in the South are coming from New York City, we are wondering if the South is not becoming the real haven.

From the locations of several of these new plants have come reports of low wages and long hours. There have also been reports of paying very low wages to "learners" and then discharging them in favor of other "learners."

The garment manufacturing industry is so closely akin to cotton manufacturing that it will be easy for the public mind to confuse the two and for cotton manufacturing to share the blame for sweatshop conditions in these garment plants.

There is so little heavy or fixed equipment in a garment manufacturing plant, that most of them can be moved overnight and the experiences of Connecticut and New Jersey have been that many of them take advantage of their employees and that when called to account for low wages or long hours, load their equipment upon a few trucks and move to some other locality.

There have recently been so many reports of the movement of New York garment plants to the South that we have become suspicious.

Some of these plants are doubtless legitimate

and intend to be permanent, but the experiences of New Jersey and Connecticut lead us to believe that many are fly-by-night propositions which hope to profit for a few months from low wages and long hours and then disappear when local sentiment is aroused against them.

The textile industry of the South should disclaim any relationship with these new garment plants except such as are known to be legitimate and permanent and avoid being given any of the blame for their actions.

Lack Energy for Silk Cultivation

A WRITER recently made the following comment:

Silkworms can be cultivated in the United States as well as in other countries, but the tedious, exacting, and hardly profitable hand labor of unwinding the cocoons does not appeal to American laborers.

The truth is that the low wage scale of Japan and China make the unwinding of cocoons in this country unprofitable unless we adopt similar wage scales and rather than take that course we prefer to let the Orientals do the work.

Another Teacher Active in Communism

A GNES SMEDLEY, a former Colorado school teacher, has led a communist movement in Northwestern China which is said to have been joined by a quarter million armed men.

The communist movement was signalized by a sudden outburst of communist flags. Chinese papers were filled with exhortations. Radio stations launched an intensive campaign to spread the red gospel.

Wherever there is a communist movement there seems to be teachers in the forefront and it also appears that there are plenty of other teachers who, while holding their jobs, seem to be active in an effort to breed other communists.

Lace Manufacturing

O NE thing which the textile industry of the South has been rather slow about adopting has been lace manufacturing.

A report of a lace manufacturing company in Pennsylvania showed that their earnings last year, after deducting preferred dividend requirements, were equal to \$5.24 per common share against \$3.54 in 1935. Net profit was \$578,811 as compared with \$396,881 in 1935.

Sauce For The Gander

A REPORT of the Judiciary Committee of the U. S. House of Representatives in January, 1936, said:

"There are in the United States individuals and organizations whose regular business is furnishing for large fees strong-arm men and thugs in almost any numbers to take part in labor controversies. It is a business which, according to information given the Committee, is not tolerated in any other country.

Citizens of Detroit, Michigan, recently issued a statement which said in part:

Workers should be protected by a Federal law from the threats and assaults of imported organizers, agitators and labor racketeers, hired by unions. Detroit is swarming with such people, obstructing and interfering with the rights of peaceful workers.

In the Flint strike, about half of the men who were sitting down in Chrysler and General Motors were from Ohio—never worked for General Motors in their lives; were hired to come up and handle this job.

Citizens of Detroit, remembering the old adage, "What is sauce for the goose is sauce for the gander," feel that if the transportation of strike breakers is to be outlawed there should be a similar restriction against strike makers. However, no such action is expected from Congress.

How It Began

I N his illustrated column "How It Began," Paul B. Berdanier, says:

"Cotton, known from time immemorial to the orientals, is first mentioned by Herodotus, Greek historian, in 445 B. C. 'The people of India,' he wrote, 'possess a kind of plant which, instead of fruit, produces a wool . . . better . . . than that of sheep: of this the Indians make their clothes.'

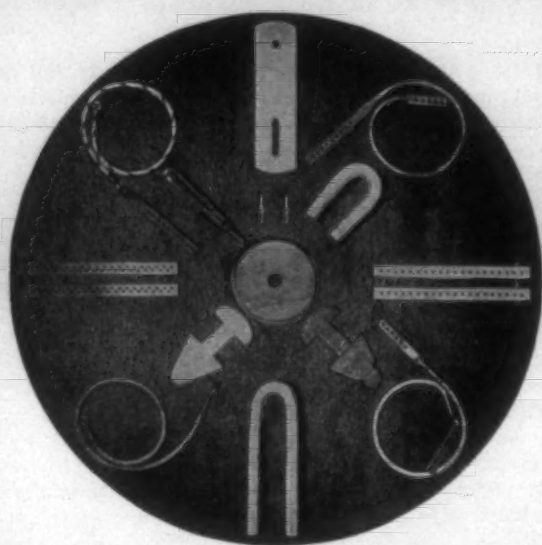
"In 1798, the wife of Samuel Slater, a woolen yarn manufacturer of Providence, R. I., successfully experimented with twisting thread from cotton yarn, instead of wool. This led her husband, that same year, to start manufacturing the first commercial cotton thread.

The Farmer And Union Labor

A ND organized labor wonders why it has such difficulty in effecting any favorable alliance with the farmers! There is a great gulf between the farmer and the laborite: the farmer is a respecter of property rights and will shed his blood in defense of these rights; the latter is contemptuous of property rights and will shed the other fellow's blood in justification of his own lawlessness.

—*Daily Independent, Elizabeth City, N. C.*

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New Automatic High Speed Looms

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Providence, R. I.

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GREENSBORO, N. C. GREENVILLE, S. C.

Mill News Items

GLEN RAVEN, N. C.—Officials of the Glen Raven Cotton Mills are ready to go ahead with the erection of an addition to the present plant.

NEWBERRY, S. C.—At Oakland Mill work has begun on the construction of granite walls between the houses on Fair avenue to prevent erosion and the company plans a program of general repairs for the Oakland Mill village.

ENKA, N. C.—Construction work on the \$50,000 filter plant and spray pond for the American Enka Corporation is progressing rapidly, according to Reed & Abee, Inc., Asheville, which has the contract.

CORDELE, GA.—According to Fred Sutcliffe, superintendent of the newly opened Crisp Hosiery Mill, the mill will begin operating on two shifts. In addition promise of immediate shipment of five more new hosiery machines has been received.

HICKORY, N. C.—The Joseph A. Sacks interests of New York have sold the buildings and machinery of the Hickory Hosiery Mills Company of Hickory to Carl V. Cline, hosiery manufacturer of Hickory, it was disclosed following the filing of the deed at Newton, N. C.

The plant employs 300 persons and is the oldest mill in the Hickory area, having been started more than 20 years ago.

The Sacks interests will continue to operate the mills until July 1st. Mr. Cline has not decided what disposition he will make of the plant, although it is stated he will continue to operate the mills, following some improvements in equipment.

The Hickory mill was incorporated in 1906 with a capital of \$200,000. It operates 293 machines on men's and children's seamless hosiery and anklets, and sells to jobbers.

SPARTANBURG, S. C.—The reorganization program of Drayton Mills, manufacturers of print cloths and other fine constructions, here, under Section 77-B of the Bankruptcy Act, and a provision for the increase of the capital stock from \$600,000 of \$100 par value shares to \$1,700,000 of \$20 par value shares, were approved by stockholders at a meeting here on June 1st. The stock change is a part of the 77-B reorganization plan.

Deering, Milliken & Co., the principal creditor, will accept \$1,250,000 in new common stock for an equal amount of the plant debt due the firm and carry the balance as an open obligation under the plan, provided (1) preferred stockholders surrender their stock on which accumulated dividends are due and accept new common stock in exchange, and (2) common stockholders accept new common stock on the basis of 40 per cent of their present holdings.

The reorganization program is to be presented next to Federal Judge C. C. Wyche here on June 8th for the court's final approval.

Treasurer J. T. Wardlaw said that a large majority of the stockholders were represented at the meeting.

Mill News Items

MONROE, N. C.—Officials of the Monroe Full-Fashioned Hosiery Company announced recently construction of a new building at Monroe had been let to P. H. Pinnex of Gastonia on a low bid of \$24,730.

ALABAMA CITY, ALA.—One hundred and forty-three mercury vapor lamps have been installed in the new slasher department of the local plant of the Dwight Manufacturing Company. The lights were supplied by the Electric Vapor Lamp Company.

BALTIMORE, MD.—Directors of the Mount Vernon-Woodberry Mills declared a dividend of \$3.50 a share on the 7 per cent cumulative preferred stock, payable June 18th to stockholders of record June 8th. A dividend of \$2.50 a share was paid in June last year.

ROCK HILL, S. C.—Announcement is made by an official of the Rock Hill Printing & Finishing Co. that the new boiler at the plant which has been installed at a cost of \$75,000 will be ready for use soon. This project has been under way for approximately two months. Robert & Co., of Atlanta, Ga., textile and industrial engineers and architects, had charge of the work. This additional equipment was necessary attributed to the fact that the boilers which have been supplying the plant have been overloaded, W. T. Jenkins, general manager of the Rock Hill Printing & Finishing Co., stated.

MARION, N. C.—In the brick building on West Henderson street, which was formerly occupied by the Lake City Hosiery Mill, the McMaids Hosiery Mill, recently organized here by L. Reid McCurry & Son, is being opened up. As the initial equipment, about 42 automatic knitting machines with auxiliary equipment are being installed. It was announced here this week that operations on the basis of approximately 3,000 dozen pairs of hose per week will be started as soon as arrangements can be completed, probably within the next two or three weeks. Mr. McCurry was formerly an official of the McPar Hosiery Mill.

NEWBERRY, S. C.—The Kendall Company has planned extensive improvements at Mollohon Mill and work has begun with Potter & Shackelford, of Greenville, contractors. The work will cost approximately \$60,000 and will require about eight months to complete.

The plans include the building of three large brick warehouses at the plant, the remodeling of the mill on the interior, with new stairs on the exterior, new toilets, reroofing the mill with tar and gravel roofing and installation of freight elevator.

Two large residences for overseers will be constructed and all houses in the village are to be painted on the interior and exterior.

It is also understood that the company has under consideration the building of a number of new residences at Mollohon and Oakland Mill to house additional employees.

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A high speed, general utility waterproof belt for regular drives made in all widths from first quality packer steer hides.

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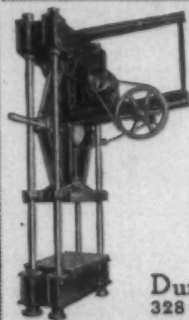
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Mill floors scrubbed with Mi-Cleanser and dried with the Denison Squeegee stay hard and smooth.

You can add many years to the life of your floors by using these products. Order the following today:

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48 Textile Students Graduate At N. C. State College

The awarding of medals and prizes on Saturday night, June 5th, will start the 1937 commencement exercises at North Carolina State College. At that time the medal annually by the National Association of Cotton Manufacturers to the Textile student who has attained the highest proficiency in the graduating class will be presented to John A. Boland, of Burlington, by George T. Bostic, assistant superintendent of P. H. Hanes Knitting Company, at Hanes, N. C. Mr. Bostic received the same honor upon his graduation from the State College Textile School in 1923.

Sunday night, June 6th, Dr. F. L. Blanton, pastor of the First Baptist Church of Wilmington, N. C., will preach the baccalaureate sermon to the graduating class.

Monday, June 7th, will be observed as Alumni Day and many prominent mill men are expected to spend that day on the State College campus mingling with college friends of bygone days.

Monday night, Dr. Arthur E. Morgan, chairman of the Tennessee Valley Authority and former president of Antioch College, will deliver the address to the graduating class.

Following the address by Dr. Morgan, degrees will be awarded to the 48 young men listed below who have completed the prescribed work in the Textile School, and it was announced by Dean Thomas Nelson that every Textile student in the graduating class had been placed in a textile position.

Bachelor of Science in Textile Manufacturing: J. S. Allen, North Wilkesboro; W. C. Ariail, Jr., Charlotte; T. E. Barrow, Farmville; E. W. Blackwood, Swepsonville; C. E. Boger, Jr., Concord; W. M. Carlisle, Rahway, N. J.; W. B. Chalk, Morehead City; N. M. Dalrymple, Jonesboro; Marshall Dilling, Jr., Gastonia; A. M. Guillet, Jr., Charlotte; C. E. Johnson, Liberty; F. S. Martin, Henderson; H. M. Middleton, Warsaw; T. R. Moir, Walkertown; J. O. Neikirk, Charlotte; M. B. Payne, Kannapolis; H. G. Perry, Wallace; J. C. Stepp, Hickory; E. H. Warren, Kernersville; H. L. Wilder, Pampa, Tex.; Thad Yelton, Shelby.

Bachelor of Science in Textile Chemistry and Dyeing: L. N. Brown, Charlotte; E. B. Elam, Jr., High Point; J. A. Feather, Jr., New Bedford, Mass.; J. W. Furr, High Point; W. R. Garrett, Rockingham; E. S. Horney, Greensboro; E. Jaskwhich, Kenosha, Wis.; J. W. Ogle-tree, Roanoke Rapids; E. J. Phibbs, High Point; R. E. Rettew, Altamahaw; Jack Schandler, Asheville; R. H. Teeter, Charlotte; T. S. Waller, Raleigh; C. C. Ware, Wilson; J. E. Johnson, New Bedford, Mass.

Master of Science in Textile Chemistry and Dyeing: R. T. Clarke, Anderson, S. C.

Bachelor of Science in Weaving and Designing: J. A. Boland, Burlington; E. H. Curtis, Climax; R. W. Dunn, Rocky Mount; Peter Ihrie, Jr., Rock Hill, S. C.; James McKimmon, Raleigh; R. H. Martin, Apex; W. H. Underhill, Wendell.

Bachelor of Science in Textile Management: J. W. Barnes, Wilson; C. W. Cockman, Rockingham; A. J. Fox, Troutman; E. J. Heilman, Phoenixville, Pa.

Anderson Appointed By Seydel Chemical Co.

The Seydel Chemical Company announces the appointment of Alexander W. Anderson as its Eastern representative.

Mr. Anderson resides at 10 Milton avenue, Edgewood, R. I., and is extensively known throughout the country as an expert on textile matters.

Soluol Corp. Moves To New Quarters

Soluol Corporation, manufacturers of textile oils and chemicals, will shortly move from its present location at 123 Georgia Avenue, Providence, R. I., to new quarters at 225 Chapman Street, Providence, R. I.

The new building, recently purchased by a subsidiary holding company, is a modern, fireproof, four-story, brick and concrete structure, and will provide additional space necessary for increased production requirements.

Alterations and installment of new additional equipment are already well under way, and it is expected that the new plant will be in full operation about June 10th.

S. M. Beattie Re-elected President of C. M. A. of South Carolina

S. Marshall Beattie, of Greenville, was re-elected president of the South Carolina Cotton Manufacturers' Association at the closing session of the annual convention in High Hampton, N. C.

William P. Jacobs, of Clinton, secretary-treasurer, and A. F. McKissick, of Greenville, first vice-president, were also returned to office.

A new office of second vice-president was created, and Walter S. Montgomery, of Spartanburg, elected to it.

The executive board was named as follows: F. W. Symmes, of Greenville; W. P. Hamrick, of Columbia; J. A. Chapman, Jr., of Spartanburg; W. A. Moorehead, of Goldville; George M. Wright, of Great Falls; M. P. Orr, of Anderson; Elliott W. Springs, of Lancaster, and J. C. Self, of Greenwood.

All past presidents are also members, in addition to the following honorary members: Ellison A. Smyth, of Balfour, N. C.; A. F. McKissick, of Greenville; and J. E. Serrine, of Greenville.

The 1938 convention site was not selected.

Nominations were made by a committee headed by W. P. Hamrick, of Columbia. Other committee reports were heard from T. M. Marchant and T. Frank Watkins, legislative; R. E. Henry, public relations; Carl R. Cunningham, manager of the traffic department, of which Captain Smyth is chairman; and F. W. Symmes, auditing.

Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, Inc., spoke during the sessions.

The Association passed a resolution calling on the South Carolina Representatives and Senators to oppose the Black-Connery Bill in its present form.

President Beattie will enter upon his sixth term and Secretary-Treasurer Jacobs his seventh.

Approximately 150 officials, representing about three-fourths of the Palmetto textile mills, were present for the final session.

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Cotton Goods Markets

New York.—Trading in cotton gray goods last week was slow, sales amounting to 10 per cent of production.

Quotations held fairly steady and some constructions strengthened. On some of the heavy goods for industrial uses, price revisions were made in line with declines on other types of goods.

Fine yarn gray cloths were slightly firmer due to the fact a number of mills have shut down and others have curtailed production sharply. A fair business was done on fancy shirtings and dress goods for the 1938 spring season.

Demand for finished cotton goods was somewhat better. Warm weather speeded the movement of goods in wholesale markets but did not lead to much buying in primary markets. Colored yarn cottons were steady. Prices on sheets were a trifle easier. Most mills making domestics are comfortably sold ahead.

Despite sluggish trade, prices on many of the print cloth constructions are starting to show a strengthening tendency. This situation is the more remarkable when it is recalled that prices eased off during weeks of comparatively active trading, whereas most of the firmness that developed in the last few days came not as the result of an increase in business but in the wake of the general belief that mills are moving into a period of high costs and that selling goods at current prices for distant deliveries may result in losses.

Rayon dress goods sold in fair volume at steady prices. The scarcity of rayon yarns continued due to the fact that two plants have been closed by labor trouble. Business on silk full-fashioned hosiery improved.

More business was booked on cotton underwear.

New business in wool goods was light but mills continued busy on old contracts. Burlap markets were quiet.

Print cloths, 27-in., 64x60s	5¼
Print cloths, 28-in., 64x60s	5¾
Gray goods, 38½-in., 64x60s	6¾
Gray goods, 39-in., 80x80s	8⅞
Tickings, 8-ounce	18
Denims	15
Brown sheetings, standard	11½
Brown sheetings, 4-yard, 56x60s	8¾
Brown sheetings, 3-yard	10¼
Dress gingham	16
Staple gingham	12

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Cotton Yarn Markets

Philadelphia, Pa.—Open production available for delivery this month and next is cropping out among yarn mills whose spokesmen claimed a few weeks ago that their sources were booked solid for three or four months ahead. From some of these sources now come offers of small lots of yarn at new low prices, indicating that while they probably remain well sold ahead on their regular range of numbers, they still need some new orders to help keep their production in balance.

This type of selling has lately appeared in combed peeler yarns and the offers are coming from original sources, whereas, the low priced offerings of ordinary carded numbers are attributed to underselling by dealers. The latter have lately aroused some competition among the smaller carded yarn mills, but apparently there is still a fair profit in the prices accepted, both for dealers and spinners.

Reports of sales of combed yarn included a few on the basis of 40½c for 30s singles on cones. There were a few holding for 42c which is considered the prevailing high of the market. A low price of 26½c was done on a quantity reported to be 100,000 pounds of 10s singles knitting put up in the carded division. A price of 27c was quoted in several cases on 10s two-ply carded and 20s were found to be readily procurable at 32c for two-ply. The market noted a few sales of 50,000 pounds, but most of the business was limited and called for fill-in lots.

It is reported that there are inquiries daily from customers whose object apparently is to keep in touch at first hand, in order to wait as long as possible before replacing stocks of yarn they have taken in on old contracts, which is being used steadily. Midyear inventories, it is predicted by some, will disclose yarn mill stocks little larger, if any, than on January 1st. It is likewise asserted that consumers' stocks will be found not excessive in most lines, so that from this standpoint the yarn situation is as sound as ever.

Southern Single Skeins

8s	28
10s	28½
12s	29
14s	29½
16s	30
20s	31
26s	33½
30s	35½
36s	39½
40s	42½

Southern Single Warps

10s	28½
12s	29
14s	29½
16s	30
20s	31
26s	33½
30s	35½
40s	42½

Southern Two-Ply Chain Warps

8s	29
10s	29½
12s	30
16s	31
20s	32
24s	33
26s	34
30s	35
36s	41½
40s	45

Southern Two-Ply Skeins

8s	29
10s	29½
12s	30
14s	30½
16s	31
20s	32
24s	33
26s	34
30s	35
40s	45

Two-Ply Plush Grade

12s	31½
20s	35
16s	33½
30s	40

Duck Yarns, 3, 4 and 5-Ply

8s	29
10s	29½
12s	30
14s	31
16s	32
20s	34

Carpet Yarns

Tinged carpet, 8s, 3 and 4-ply	25½
Colored strips, 8s, 3 and 4-ply	27
White carpets, 8s, 3 and 4-ply	27

Part Waste Insulating Yarns

8s, 1-ply	24
8s, 2, 3 and 4-ply	25
10s, 2, 3 and 4-ply	27
12s, 2-ply	27
16s, 2-ply	28
20s, 2-ply	32
30s, 2-ply	37
30s, 2-ply	37

Southern Frame Cones

8s	27½
10s	28
12s	28½
14s	29
16s	29½
20s	30½
22s	31½
24s	32
26s	33
28s	34
30s	35
36s	37½

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Argentine Cotton Crop Is Sharply Reduced

The second official estimate of the 1936-37 cotton crop of Argentina, issued by the Argentine Cotton Board is 52,900 metric tons, which is equal to 243,982 equivalent 478-pound bales, according to a cable to the New York Cotton Exchange Service. This compares with a previous estimate issued by the Cotton Board early in March of 78,000 tons, equal to 359,747 equivalent 478-pound bales. The Argentine crop was privately estimated earlier in the season as high as 450,000 equivalent 478-pound bales. It was reduced primarily by an intense drought which resulted in the abandonment of 31 per cent of the acreage. Last season, Argentina produced 30,957 tons, equal to 373,385 equivalent 478-pound bales, and the previous season 64,038 tons, equal to 295,352 equivalent 478-pound bales.

Adds Playgrounds

Gastonia, N. C.—In the Firestone Cotton Mills, Inc., community, company workers are preparing a number of new playgrounds, the baseball park is being put into excellent condition. All operatives of the mills and their families are working to beautify and improve the streets, yards and gardens.

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Canadian Mill Plans

Toronto.—A \$500,000 expansion program is announced by Dominion Textile Company for its Magog print works at Magog, Quebec. G. B. Gordon, managing director, said a large new building would be erected, and \$250,000 spent on machinery and equipment. The new unit will specialize in printing and finishing fine shirtings.

Japanese Cotton Good;

Where importers and buyers of Japanese cotton goods used to avoid any admission of the fact, they now often boast of it. Those who are more vociferous excuse themselves on the score of domestic high prices. They take the position that if our mills cannot operate with enough price raising restraint they have a moral right to buy Japanese goods at the low prices available. In this connection it is explained that 36-inch bleached goods with a crisp finish measuring around 90x80 finished are selling at 8c, landed. An 8-inch

sheeting, finished around 80x72s, made of 25s and 25s yarn, is selling at 24c a yard. It is observed the price is about one-third less than that of our own sheetings. It is noted the nubs in the cloth are more numerous than in any firsts made here. It is related of a number of importers that they are cutting away the ends on which "made in Japan" is printed and stamping "made in the U. S. A." substituted. Some say the Customs Department is permitting the deception, claiming that anyone knows when he is getting Japanese-made goods by the odd counts they are made into.—*Daily News Record*.

Textile Students Given Diplomas

Danville, Va.—Diplomas have been presented to 16 young men who graduated from the Danville Textile School. Certificates were awarded those completing a two-year course, at a banquet which was attended by approximately 120 persons. B. H. Van Oot, State Supervisor of Trade and Industrial Education, was the speaker. Through the privileges of the course, 32 young men have secured profitable positions with the local mills.

Strange Words in Cotton Mills

There are hundreds of slashers in Greenville County, but that shouldn't trouble you. Nobody's going to get cut.

There are hundreds of slubbers in the county, too, but that shouldn't be a puzzle.

A slubber is one who slubs. A slasher is one who slashes. All very simple—to the 17,500 textile workers in Greenville County, one of the centers of the Southern textile industry.

The strange cognomens are the names of the occupations of some of these textile workers, and far from being funny, they are serious business to the textile industry. It must be admitted, however, they're labeled with some of the strangest sounding names in the world.

To list a few, how would you like to be a slasher tender, a mule spinner, a picker or card tender, a ring twister?

Strange sounding words, those, but if you are initiated, they are accurately descriptive.

It's really very simple. Cotton comes to the mills by rail or steamer in the huge compressed bales in which it is packed at the Southern gins.

It goes to the picker room where the bales are opened, the cotton loosened and broken up by a picker machine, operated by picker tenders, of course.

Next the cotton is carded, or combed out so the fibers all lie in the same direction with card room employees variously called card tenders, card strippers or card grinders, according to the work each does.

Here also are the slubber tenders, who operate machines which separate the combed cotton into tape or untwisted strands of fibers. It is wound on spools, removed and replaced by empty ones by doffers.

In the spinning room, the yarn is wound into thread on machines operated by mule spinners or ring twisters, according to the type of apparatus used.

Your doffers have their second innings here, removing the spools or bobbins of thread to be carried to the slashers. These are machines which do not cut it up, as you might think, but prepare it with sizing for the ordeal of weaving.

Smash piecers stand by to repair smashes in the looms, loom fixers are there to fix looms, repair or adjust or make them ready for work.

A list of mill occupations has its prosaic side, too, with common ordinary painters, plumbers, electricians, machinists and blacksmiths, engineers and firemen, and even coal wheelers. They are all maintenance or power workers.

And while all mill workers are sometimes termed "mill hands" a "hand" is really something of a big shot. The first hand of a department is actually the overseer. His assistant is a "second hand." In mills large enough, or busy enough, there are assistants' assistants, too, known as "third hands."

And of course, all mills have their "white collar" workers, employed in business offices, as designers, chemists and testers.

Cotton mills have a peculiar nomenclature, but it's descriptive—and simple if you know your slubber tenders.—*Daily Piedmont, Greenville, S. C.*

Japanese Seek New Sources for Rayon Pulp

Tokyo, Japan.—The growing scarcity and appreciating prices for rayon pulp are responsible for synthetic fibre executives here turning to other pulp sources than wood or cotton. The Kanegafuchi Spinning Company, for instance, is now building at Yingkow, on the River Liao, Manchoukuo, a pulp mill with a daily capacity of 20 long tons and using as raw material common reeds which grow in inexhaustible quantity on every riverside all over Manchoukuo and North China. Shingo Tsuda, president of the spinning concern, announced some time ago that this particular reed satisfied all requirements of rayon pulp raw material. The Yingkow mill will be ready for operation some time this year and will be the first pulp mill in the world using reeds as raw material.

A group of concerns, mostly cotton spinning mills, are working out schemes of obtaining rayon pulp from mulberry branches which until this time have been thrown away after being stripped of leaves for silk worm feeding. Although there is a wide disparity in cellulose contents between the bark and the body, the mulberry tree as source of rayon pulp has long been known to be ideal, but the chief difficulty has been to obtain them cheaply and in abundance and for building suitable machinery and finding effective methods of chemical treatment.

One company which has recently placed its shares in the capital market here claims that every one of these problems has been successfully solved. It says that agreements have been made with principal sericultural districts assuring constant and abundant supply of mulberry branches, while necessary machinery and chemical treatment methods have been perfected by its experts.

In fact, in a test plant set up for the purpose this equipment has been operating to complete satisfaction for some time. The company is now building a 10,000-ton plant where, it is claimed, it can produce rayon pulp at a cost of 8.5 sen per pound. The feature of this particular pulp scheme is obtaining staple fibre direct from the pulp still in liquid form without first turning the substance into sheet pulp as usually is the case with other pulp.

Besides the above there are other pulp-making schemes which use soy beans, straw and miscanthus as raw material, while one concern was reported as contemplating to start a rayon pulp making enterprise using rag as raw material. The Asahi Bemberg Company figuring in this report later denied it on the ground that a sufficient and sustained supply of that material is impossible to obtain to make that scheme feasible.

For the immediate future, however, synthetic fibre mills here seem to be well supplied with wood pulp for their needs. Wood pulp requirements by rayon and staple fibre mills here for the 1937 calendar year are estimated to be about 20 per cent greater than in the previous year at 170,000 long tons for rayon making and 110,000 tons for staple fibre, a total of 280,000 tons. Domestic supply for the year is estimated at 40,000 tons and the balance 240,000 tons will have to be imported from abroad. It is reported that contracts have thus far been concluded with foreign supplies for about 300,000 long tons, sufficient to fill mill needs up to March next year. Japan's principal

sources of rayon pulp in order of importance follow: U. S. A., Norway, Finland, Sweden, Canada, Czechoslovakia and Germany.

E. F. Houghton & Co. Organizes Research Sales Staff

In line with plans which have been under way for some time, the organization of the Houghton Research Sales Staff was recently announced by Major A. E. Carpenter, President of E. F. Houghton & Co.

Widely known as manufacturers of industrial oils and leathers, this company's facilities have been rapidly expanded in recent years. "The organization of the staff is designed to keep the high standards of Houghton research and service in line with the increasing demands of industry—both here and abroad," explained Major Carpenter.

"Every man on the Houghton Research Sales Staff is a specialist in his particular field. The staff is set up to function with the utmost speed and efficiency, and its primary requisite is to render impartial and expert service to customers and industry as a whole."

The staff is made up of five divisions—Textile, Industrial Lubrication, Metal Working, Leather, and Leather Oils and Greases. Each division is headed by a research engineer whose duty is threefold. He works to develop new products—to better existing products when possible, and to render a real service to individual concerns in the industry he covers.

The research sales staff is under the supervision of L. D. Holland, manager of marketing research. The actual staff organization is as follows:

H. C. Roberts, manager, textile research; Dr. E. R. Manning, textile research (rayon); Albin Johnson, textile research (silk); C. L. Shelton, textile research (wool); C. P. Geen, manager, lubrication research; G. W. Esau, manager, metal working research; O. M. Gibson, metal working research; E. L. Ward, metal working research; J. N. Smith, manager, leather research; A. Ruwell, leather research; R. Keane, leather research.

Mills Secure Wools

Lebanon, Tenn.—The Lebanon Woolen Mills was the successful bidder on the annual Wilson County spring wool pool of approximately 60,000 pounds recently. The top price was \$38.90 per 100 pounds. There were ten bidders. Other prices in the successful bid were: Light burry, \$35.10; medium burry, \$32.25; hard burry, \$29.75; black, \$35; lamb wool, \$35, and dead, \$35.23.

The Mt. Juliet, Tenn., pool went to the Peerless Woolen Mills, of Rossville, Ga. Approximately 11,000 pounds, 95 per 100 of which was clear wool, brought \$38.55 per 100 pounds for the best wool, with light burry, the only other grade in this pool, at \$35.05.

At Pulaski, Tenn., 38 Giles County growers participating in the annual wool pool secured prices that exceeded those for the 1936 pool by more than 2 cents a pound, N. C. White, manager of the Giles County Farm Bureau, reported. This year's top price was 38.31 cents a pound.

At Fayetteville, 15,000 pounds of wool were sold. Prices for clear wool were 38.31 cents; light burry, 30 cents; medium burry, 34 cents; all other wools, 32 cents a pound.

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Increase in Use of Spun Rayon

(Continued from Page 6)

ing takes place which must also be provided for because the big factor for successful operation is that the pulp sheet does not tear.

This brief description may give an idea of some of the changes which are being considered to facilitate the large scale production of viscose solution for the spinning of cut staple.

Cutting of Fibre

Returning now to the spun yarn. The strands from each jet, as stated above, are gathered into a tow which from a 100 jet machine each with 1,000 holes and spinning 1.5 denier filaments would have 100,000 filaments and be 150,000 denier in size. There are two systems of treating the tow—the so-called wet and dry system. In the wet system the tow from the spinning machines is run directly to the cutter which can be set to give any desired fibre length. After cutting the fibres are desulphidized, bleached, given a finish and dried in bulk form. In the dry system, the tow is run continuously through the desulphidizing, bleaching, finishing and drying operations and is finally cut to size. In both systems the cut fibres are shipped out in bales to the spinning mills. In the spinning mills the bales are opened, carded and in general given the treatments applied to natural fibres like cotton and wool, first straightening out the fibres to be parallel and then spinning them into the various sizes and types of yarns.

Mixing or blending with natural fibres is also done at the spinning mills and it is rather interesting to note that cotton mills are not only spinning straight spun rayon but also blends of cotton and spun rayon, cotton and wool and spun rayon and wool. In the same way wool and worsted mills are making up and spinning either all wool, blends with spun rayon or all spun rayon.

As the spun rayon can be made of any filament size and staple length the 1.5, 3 and 5.5 denier filament sizes have become more or less standard for spun rayon today. The 1.5 denier size corresponds to the average cotton fibres used in this country while the 3 denier is about the average of the coarser cottons like Peruvian, India and Chinese or the finer wools. The 5.5 denier corresponds to the regular wool and worsted fibre. Sizes of 7 and even 10 denier may correspond to mohair, rabbit hair, etc.

May Be Any Length

The staple can, of course, be made any length which can be handled on the cotton or wool spinning machinery. While the filaments may be made bright or any degree of dullness, bright at the present time predominates although quite a little dull was used in some of the fabrics last fall, particularly those in which dull spun acetate was used in the wool and worsted mixtures.

An interesting feature of this ability to blend with other fibres makes it possible to achieve rather novel effects in cross dyeing, i. e., the spun rayon may be dyed and the acetate or wool left undyed or vice versa; or again the two fibres may be dyed different colors in the same dye bath.

At the present time the majority of spun rayon is being processed on the cotton system and goes into the 'challis type or linen effect fabrics, also dress goods with slub yarn effects. Blended with cotton it has been found where colors and white were desired in the same cotton yarn that the addition of the bright rayon staple makes the cotton appear a cleaner white and incidentally makes the stock dyed cotton colors seem much brighter and more brilliant.

Rayon staple gives a much softer and more pliable yarn than cotton and the degree of softness may often be regulated by the ratio of the blend and by the filament size of the spun rayon. Cotton fabrics are not as absorptive as spun rayon fabrics of the same type and construction. This has led a nationally known towel manufacturer to put out a dish towel containing cotton, spun rayon and linen all blended together so as to have a strong fabric with good absorption and freedom from lint.

Blends With Wool

Blends with wool are of many kinds and the spinning is done either on the wool or worsted system. In the former, mixes of various wools or other fibres are made on the floor. In the processing and blending which follows intertwining and felting of the fibres takes place. It was this system of wool blending which has consistently used rayon waste for years. Any irregularity of size and length of filaments of the waste is no particular drawback but rather aids the effect desired in wool spinning. In worsted spinning, on the other hand, the fibres are combed out and kept parallel as in cotton spinning and blends are usually made at the gill box. Hence in this type of spinning regular cut staple of uniform size gives the better yarn. This type of yarn is being used in suitings. Worst-ed manufacturers when they first tried blends with rayon staple expected the resulting yarn to be of lower strength but they actually found to their surprise that the yarn strength was as high or even higher than the all-worsted yarn both wet and dry. *Jl. Textile Institute, Aug., 1936, p. 315, W. Hardacre, also Textile World, Oct., 1936, p. 68, Worsted Spun Staple.

It might be well at this point to mention another fibre which quite recently has made its appearance in Italy to replace wool in fabrics, namely, the Casein yarn made from skim milk and known as Lanital. The Casein or clabber of milk is rendered soluble in caustic soda and in this form is spun as rayon yarns are spun through multi-holed jets into a suitable spinning bath containing formaldehyde. The resulting multi-filament yarn is cut into staple length and handled as any other cut staple is handled. It is, of course, a protein substance and in its empirical composition and in its ability to take certain dyes it resembles wool even though its basic molecular structure is probably not at all like that of wool.

This new development of a textile fibre has aroused considerable interest in agricultural, i. e., dairy communities which might benefit from the production and sale of skim milk raw material. As judged by samples received from Italy the Lanital yarn is only from one-tenth to one-fifth as strong as wool but further investigations and developments in this new field will no doubt bring about great improvements.

Market for Lanital

Italian sources claim that there is a steady market for about two tons of Lanital per day or at a rate of about 1,200,000 pounds per year and that an increase in production capacity will provide for about three times this production in the near future. To stimulate the use of the material it is stated that a general order has been issued in Italy requiring that hereafter all Italian and Fascist flags and banners are to be made of Lanital. According to Italian sources it requires about 264 gallons of ordinary milk to produce 7 pounds of Casein which in turn produces 12 pounds of the new textile fibre Lanital. News dispatches report that Austria, Poland and Czechoslovakia are interested in this type of yarn as a wool substitute and in co-operation with the Snia interests of Italy are preparing to manufacture it in each of these countries.

No Dyeing Problems

The dyeing of spun rayons whether made of the various regenerated cellulose types or of acetate offer no greater difficulty than do the continuance filament yarns and fabrics.

Finishing of spun rayon types of fabric is rather important if they are to render their greatest usefulness and give consumer satisfaction. In general fabrics made of spun rayon are very soft and pliable with excellent draping qualities while those made with heavy denier filament yarns are somewhat less soft; they all tend to wrinkle and crush rather easily. This is particularly true when the woolen or worsted types of fabric are considered. Wool fibres have a certain resiliency or springiness due to the true elasticity of the fibre which property, we are sorry to say but candidly do say, is essentially lacking in the rayons and spun rayons as made today.

The old oil and sulphonated oil and wax finishes when applied to spun rayon fabrics do not improve this condition and often leave the fabric with a peculiar rancid odor which usually develops during storage of the finished goods and is quite objectionable. This has led to the investigation of synthetic resins and some remarkable results have already been achieved even though this development, like that of spun rayon itself, is only in the initial stages as yet. These resins were primarily developed as plastics but already they threaten to entirely displace the older finishes. Some of these are made from urea and formaldehyde, from the polyvinyl alcohols, from acrylic condensates, to mention only a few and show considerable promise in the textile field. Such resins are usually applied in water soluble form together with the necessary catalyst at the quetsch to get uniform distribution after which the cloth is heated in the presence of steam to a rather high temperature of 260-280 degrees F. which renders the resin quite insoluble.

The character of the polymerized resin is, of course, important and a resin like the urea-formaldehyde will provide resiliency to the fibres and fabrics which otherwise would be lacking. In the same way other resins will make the fabric water repellent and therefore spot resistant. Water clear resins are desired so that they may have little or no effect on the brilliancy of the colors and in no case should any of the serviceable resins impart any appreciable odor to the fabrics. The high tempera-

tures which seem necessary for curing or setting some of the resins are objectionable both as to the effect of such temperatures on the fibres as well as on the dyes.

Intensive research is under way to find synthetic resins which are inexpensive, easy to apply and rendered insoluble around the boiling point of water which will have no action either on the yarn or dyes and such resins should not be appreciably removed in ordinary laundering nor during dry cleaning. Some of these resin finishes on the market today meet most of the conditions mentioned. Treated with such finishes the fibres take on a resiliency similar to that of wool, will hold their shape and show but little tendency to creasing.

A natural question which is often asked is, are fabrics made of cut staple as warm as woolen fabrics of the same or similar construction? The warmth or insulation of such a fabric is the same whether it be made of wool, cotton or cut staple since it is not the nature of the fibres which determines the warmth but the air spaces held within the fabric. When, however, such fabrics are washed or laundered and possibly ironed the wool fibres with their inherent resiliency spring back more or less to their original condition and thus maintain the air spaces within the fabric. The cotton and cut staple fibres, on the other hand, in the absence of a suitable resin finish tend to crush so that the air spaces are reduced which in turn reduces the warmth or heat insulation accordingly. If, however, the fabric has been given a suitable resin finish imparting resiliency to the fibres then the insulation or warmth is maintained as in the case of wool.

From what has been said it is quite plain that this newer textile material known in the trade as spun rayon, cut staple or "Fibro," the trade name for the product of Courtaulds in England and the Viscose Company in this country, is bringing about a wonderful textile development.

At this point an economic factor enters the picture, namely, Japan. Prior to the world war she had no rayon industry but since then her rayon production has increased phenomenally so that last year (1936) she produced some 275,000,000 pounds of continuous filament yarns as compared to our 277,626,000 pounds. If, however, to these figures are added the production of cut staple, namely, 50,000,000 pounds for Japan and only 12,000,000 pounds for the United States then Japan was the largest producer of rayon in the world by some 35,000,000 pounds. Due to low cost of Oriental labor and the depreciation of the yen, she has been able to offer her product at a price which cannot be met in the open world markets by any European much less any American nation. The nearest approach to a competitor is Italy.

Last year this country produced some 12,000,000 pounds of spun rayon and imported some 14,000,000 pounds, half of which came from Japan. Even under the present tariff she was able to lay down her product here and sell it at a price with which the domestic manufacturer simply cannot compete. Nevertheless, large spun rayon mills are being built in this country some of which will come into production within the next few months based on the hope that this plant investment in this newer textile development will not prove in vain.

Southern Sources of Supply

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Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in TEXTILE BULLETIN. We realize that operating executives are frequently in urgent need of information service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.

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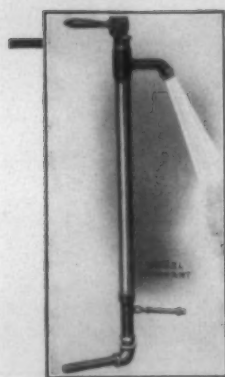
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